January 21, 1980

Deborah T. Marsh Union Carbide Corporation P. O. Box 8361 So. Charleston, WV 25303

Subject: WELLPOINT INSTALLATION

Sistersville Sites 1 & 2

Sistersville, Tyler County, WV Project Nos. C79099 & C79100

Dear Deborah:

The purpose of this letter is to summarize our work in the installation of sampling wells at two sites at Union Carbide's Sistersville plant. Submitted herewith are these summaries. Reference is made to your correspondence to Mr. C. F. Schubert dated November 1, 1979.

#### Site 1

Site 1 is located at the base of a hill adjacent to the Ohio River flood plain. This site was used at the beginning of the construction of the Sistersville Plant as a disposal area for drums containing chemical wastes from other plants. This disposal area now appears in the form of three (3) small ponds each roughly 40 feet by 15 feet. An additional area to the south of these ponds has reportedly been used for drum disposal, however, no surface evidence was present.

The purpose of this work was to provide subsurface information around the periphery of the landfill and to install ground water monitoring wells from which samples could be taken over long term periods. Four (4) wells were installed at this site by Drilling Services, Inc., of Covington, Kentucky on December 11 and 12, 1979 under subcontract to us and under our observation. The borings were made using a combination of split spoon sampling and auger type drilling with two Shelby tubes obtained and two field permeability tests run.

Triad Engineering Consultants, Inc.

MPM0002535

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The first boring was drilled down gradient about 100 feet from the site toward the river. This boring was drilled using an auger to advance the boring. A sample was obtained at a depth of 36 feet but for the primary purpose of demonstrating split spoon sampler. This boring revealed water at about 22 feet and a total depth of 42.5 feet to refusal.

Boring No. 2 was then drilled up gradient from the landfill. This boring revealed a very stiff, red and brown residual silty clay with rock fragments to a depth of 21 feet. This material appeared to be relatively impervious. At a depth of 21 feet, a very impervious layer of clay was encountered. Below this existed a gray clay silt to refusal at 36.5 feet. Water was encountered at 24 feet and the monitoring well was installed to a depth of 33 feet with the bottom 15 feet slotted. In general, split spoon samples were obtained in Holes 2, 3, and 4 at Site 1 at intervals varying from continuous to five (5) foot centers with the continuous samples being taken at the more critical locations. The wells were installed by slotting  $1\frac{1}{2}$  inch pvc pipe using slots approximately 1/32nd inch wide approximately one inch on centers. Bank run sand was installed around the pipe to approximately two (2) feet above the slotted portions of the pipe. In general, the wellpoints were slotted for the entire layer where water was encountered and the seal placed just above this. Other special sampling procedures include initially scraping the sample to remove possible contamination from previous sample and storing the sample in decontaminated jars. At this location, a mixture of bentonite and portland cement was installed for the purpose of sealing the wellpoint and baring any contamination from above. Above this bentonite cement seal, a clay was backfilled to the top of ground. This clay was backfilled in a relatively loose manner and may settle somewhat. If this occurs, we recommend additional clay be mounted around the

In Boring No. 3 which was closest to the western most pond, small water veins were noted in the samples so this boring was not continued to refusal but was stopped at the layer of very impervious clay and an undisturbed Shelby tube was obtained. A Shelby tube is a relatively thin walled sample, metal tube, which is pushed into the ground by hydraulic pressure as opposed to the driving of the split spoon and this obtains a relatively undisturbed sample. The boring was terminated so that a sample of the most critical (probably) ground water could be obtained.

Boring No. 4 was drilled to refusal at about 28 feet and in this boring a highly pervious layer of sand and gravel was encountered between 22 and 27 feet.

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Field permeability tests were made in Borings 3 and 4 with the following results:

Hole	Test Interval	Permeability
3 4	.5 - 16.5 .5 - 21.5	$3.2 \times 10^{-7} \text{ cm/sec.}$ $6.8 \times 10^{-7} \text{ cm/sec.}$

#### Conclusions - Site 1

Based on the results of the drilling, it is estimated that contamination at Site 1 will be minimal to nonexistent but future chemical analysis will confirm this. With respect to the drilling, less frequent sampling interval and using "proper" size jars with rubber or plastic seals would be appropriate.

The wells should provide representative samples and probably no additional work need be considered at this site.

#### Site 2

Site 2 is generally in the northern end of the plant and consists of several landfills which have built up over the years. Specific details of the composition of these landfills were not revealed to us. The sampling well locations were selected based on landfill locations. A total of eight (8) wells were installed at this site for the purpose of obtaining soil and eventual ground water samples for chemical analysis of possible contaminates. Two (2) of these borings were drilled above the landfill sites for the purpose of obtaining some background information on ground water. One of these borings (No. 3) did not encounter any water and, therefore, no monitoring well was installed. However, this boring was left open so that samples could be obtained if water enters the hole and it would be relatively easy to install the monitoring well at some future time. The other background well (No. 1) just east of an exposed ash refuse pile did hit water at about 14 feet. The remaining borings were made within the flood plain, generally either to a depth of about 10 feet below the ground water table or for the entire depth of the strata to bedrock.

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Split spoon samples were obtained at intervals from 2.5 to five (5) feet in all of the flood plain borings. Of particular note was that a chemical odor was noted in most of the samples below the ground water level. It was also noted that this odor appeared stronger in the borings that were closest to the landfill. Some variation was made in the drilling program primarily based on field information obtained during the drilling.

Approximate location and numbers of the borings are indicated on the enclosed sketch for reference. It is our understanding that Union Carbide will locate all borings by survey. Enclosed are the driller's field logs of all of the borings to which some notes have been added based on our observations.

It must be noted that the method of sampling was changed during this drilling from the scraping of the samples to washing the sample spoon each time because scraping the sand samples appeared to be both ineffective and very inefficient in that considerable sample was wasted.

Conclusions - Site 2

In addition to the conclusions for Site 1, "washing" a wellpoint into the ground might prove to be effective for the sands and gravels at Site 2. If analysis indicates significant contamination, this method might be used for future well installations.

We hope that this report meets your needs. If you have any questions, please do not hesitate to call.

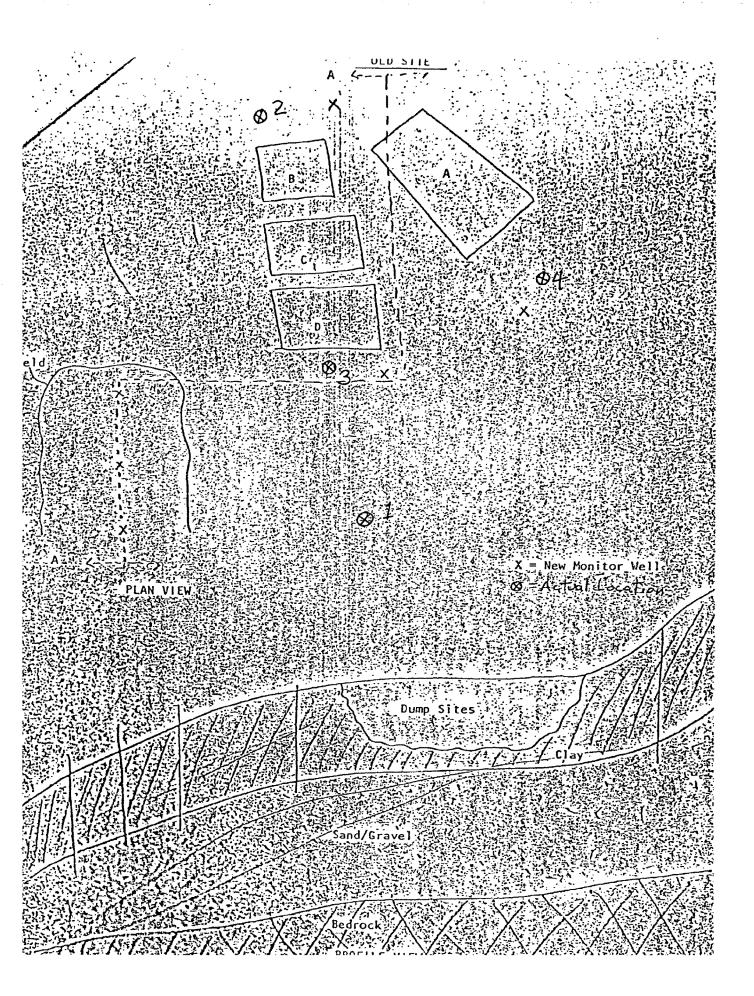
Very truly yours,

John W. James, P. E. Geotechnical Engineer

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JWJ: jlm

Enclosures



516 Enterprise Drive Covington, Kentucky 41017 **Exploratory Drilling** 

Test Borings Rock Coring

Phone: 606-341-4958

Pressure Testing

	T	riad Engineering Consultants				BORING	1		
	DOOK OT	Subsurface Exploration. Union Carbide Plant, Site No. I	, Sis	tersv	ille	, JOB #		099	
	LOCATION	OF BORING As directed in the field /We	st Vi	rgini	<u>a</u>		<u>DR-</u>	<u>963</u>	<u>}3</u>
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	CLIENT	Triad Engineering Consultants				BURING #	2		
	PROSECT	Subsurface Exploration, Union Carbide Plant, Site No.	l, Si		/ille		C790		
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ŧ	Datum	Hammer Wt, LDs. Hole Diameter		Foreman		W.PL.			
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Pressure Testing

	CLIENT_	riad Engineering Consultants		<del></del>		BORING # 3			
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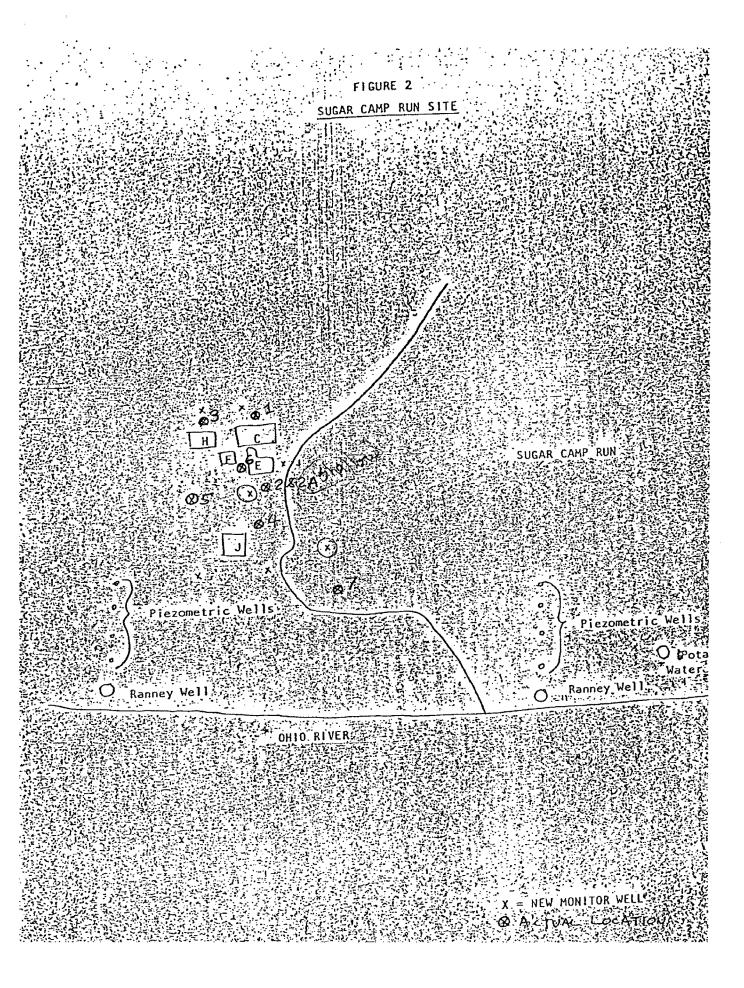
Test Borings

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Pressure Testing

	CLIENT	Irlad Engineering Consultants					BORING # 4			
	PROJECT_	Subsurface Exploration, Union Carbide Plant, Site	No. 1	, Sis	tersvi	lle.	JOB # <u></u>	7909		
	LOCATION	OF BORING AS directed in the field	<u>/Wes</u>	<u>t Vir</u>	ginia		DI	R-96	<u>533</u>	
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Pressuré Testing

	Tı	riad Engineering Consultants			_ BORING #	
	CLIENT	Subsurface Exploration, Union Carbide Plan	nt Site No. 2, Si	stersville	<u>С7</u>	9100
	PROJECT	of Boring As directed in the field	· /Wes	t Virginia	1 DK	1-9633
	LOCATION	OF BORING			SAMPLI	F
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Test Borings

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**Pressure Testing** 

#### FIELD LOG OF TEST BORING

	CLIENT_T	riad Engineering Consultants				BORING #	2 (		
	PROJECTS	subsurface Exploration, Union Carbide Plant Site No. 2	<u>, Sist</u> est Vi	<u>ersvi</u>	lle,	JOB #	<u>C79</u>	<u>100</u> 9633	
	LOCATION	OF BORING As directed in the field /We	est Al	ryinia	<u>.                                    </u>		DK-	302	
	FLEV.	SOIL DESCRIPTION	STRA.	DEPTH		SAMP			т
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$\dashv$				35-	U	10/3/4	ho	bs.	18
_	```	Hammer Wt. 140 Lbs. Hole Diameter 8"				W.M.			
	orf. Elev	- Ft. Hammer Drop 30 In. Rock Core Dia		Foreman Engineer,		~			
	ate Started .	12/17/70 A D 2 . UCA		Date Corr		12/17/79	9		
	AMPLE CO	NDITIONS SAMPLER TYPE GROUND WATER	DEPTH			BORING MET	THOD		
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Phone: 606-341-4958

**Pressure Testing** 

	CLIENT T	riad Engineering Consultants				BORING #_	2(2/	2)	
	PROJECT	Subsurface Exploration, Union Carbide Plant Site No. 2	<u>, Sis</u>	tersvi	ille.	JOB #	791	00_	
	LOCATION	OF BORING As directed in the field /West	virgi	nıa	<del>;</del>		)R-9	233	
		SOIL DESCRIPTION	STRA.	DEPTH		SAMP			_
	ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	DEPTH	SCALE	Cond	Blows/6"	No.	Type	Re
				35	D	10/3/4	10	DS	ha
-				-		10,0,1	1.0		١.ٽ
1				]. ]					
_		Brown and gray wet medium dense fine to		40 —	0	8/8/12	11	DS	18
		coarse SAND and GRAVEL with chemical		4		•			
$\exists$		odor from 30.0 to 54.2 feet.		45 —					
$\exists$		•		13	D	8/7/8	12	DS	1
		. •							
Ⅎ				50 -		10.175			
-					$\Gamma$	40/76	13	DS	1
$\exists$			54.2						
7				55 -	L D	70/2"	14	DS	0
コ				-	i				
$\exists$	:	Bottom of test boring at 54.2 feet.							
님		bottom of test but my at 34.2 feet.					1		
$\dashv$		,					1		-
7	-			-					
$\exists$	İ	NOTE: Installed 52.0 feet of piezometer	•	-		•	1		
$\exists$	l	pipe including 2.0 feet above ground.		7					
ᆸ		·							
Н									
4									
$\exists$	1			_					
$\exists$	.	·		7					
7	ı			7	l				
ゴ	1	·		コ		•			
$\exists$	1			1			1		
$\dashv$	į								ĺ
F					1				l
7	1								l
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Ĺ		' 140				LI M	ــــــــــــــــــــــــــــــــــــــ		
	Datum	Kammer Wt. 140 Lbs. Hole Diameter 8"		Foreman		<u>W.M.</u>			
	orf, Elov, Date Started	Ft. Hammer Drop 3U In. Rock Core Dis. —  12/17/79 Pipe Size 0.D.2 In. Boring Method HSA		Engineer Date Con		10/17/7	9		_
	AMPLE COM	190 0120				BORING MET		٠.	
	D - DISINT	FGRATED DS - DRIVEN SPLIT SPOON FIRST NOTED 19.	Q FT.			- Hollow Ste	m Aug		
1	ı – INTACI u – UNDISI		E FT. FT.		CFA DC	<ul> <li>Continous</li> <li>Driving Cer</li> </ul>		Mußer	1\$

516 Enterprise Drive Covington, Kentucky 41017 **Exploratory Drilling** 

Test Borings

Rock Coring

Phone: 606-341-4958

**Pressure Testing** 

	CLIENT T	riad Engineering Consultants				BORING # 2	<u>A</u>		
	PROJECT	Subsurface Exploration, Union Carbide Plant Site <u>No. 2</u>	, Sis	<u>tersyi</u>	]]e,	JOB •	7910		
	LOCATION	OF BORING As directed in the field /Wes	t Vir	ginia		D	R-96	33	
	· ·	SOIL DESCRIPTION	STRA.	DEPTH		SAMPL	.ε		
	ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	DEPTH	SCALE	Cond	Blows/6"	No.	Type	Re
_		SURFACE	0.0 -			-	1	1	
_	· ·	D AND COL						1	
_		Brown moist medium dense clayey SAND with		l _ =					
	}	fine gravel.		5	ם	6/3/4	h	bs	16
_	1			-		,		l	
_	[		10.0	10_					
_				10-	Ы	4/6/7	2	bs	18
-							ļ		
_		Brown moist medium dense fine SAND.	ŀ	15_		C (7230		2	١.,
	1			ا " ا	ט	5/7/10	ß	DS	lı g.
_				-	D	6/8/8	4	bs	18
_				20-	D	£ 17 10	_	DS	h 01
_					U	5/7/8	٦	ps	10
				1 =					
$\exists$			·	25-	D	6/5/6	6	DS	יאַל
						0,0,0	٢		ľ
$\exists$		•		l =				.	
$\exists$			31.5	30-	D	6/7/8	7	bs	18'
╕									
$\exists$				ا ا					
彐		Bottom of test boring at 31.5 feet.		35					
$\exists$		NOTE: Installed 30.0 feet of piezometer pipe		7					
٥		including 2.5 feet above ground.						ľ	
$\exists$		·							
4		•							
7				$\vdash$					•
$\exists$	l			7	I				
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$\exists$		•			•	•			ĺ
$\exists$	İ								ĺ
٦								1	Ĺ <u></u>
ı	Datum	- Hammer Wt. 140 - Lbs. Hole Diameter 8"		Foreman		<u> W.M.</u>			
	Surf. Elev	- Ft. Hemmer Drop 30 In. Rock Core Die		Engineer		10/10/7	<u> </u>	,	
		12/18/79 Pipe Size 0.0.2 In. Boring Method HSA		Date Con	npleted			-	
	SAMPLE CO				нех	BORING MET  — Hollow Ster		ers	
	D - DISINT	T PT - PRESSED SHELBY TUBE AT COMPLETION	te FT		CFA	- Continous F	light.		r\$
	U - UNDIS	TURBED CA - CONTINUOUS FLIGHT AUGER AFTER HRS	FT		DC	<ul> <li>Driving Casi</li> </ul>	ng		

516 Enterprise Drive Covington, Kentucky 41017

**Exploratory Drilling** 

Test Borings

**Rock Coring** 

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**Pressure Testing** 

#### FIELD LOG OF TEST BORING

	CLIENT	Triad Engine	ering Consul	tants		,			в	ORING #3	<u> </u>	
	PROJECT	Subsurface E	Exploration,	Union Carbi	de Plant Site	No.2,	Sist	<u>ersvil</u>	le,	xob #(	:7910	
	LOCATION	OF BORING AS	directed in	the field		/West	Virg	<u>inia</u>		0	R-96	33
		·						<del>,</del>				
	ELEV.	}	SOIL MOISTURE, DENSIT	DESCRIPTION		_	STRA.	DEPTH		SAMP	<del></del>	
		COLOR,	MOISTURE, DENSIT	TY, PLASTICITY,	SIZE, PROPORTIONS	S	DEPTH	SCALE	Cond	Blows/6"	No.	Type Re
				SURFACE			1.0					1 1
_	4	Brown and	red most st	iff STLTV C	ΔΥ	- ;	1.0	t -			1 !	
_	1	Di Owir and	Teu most st	III SILII CI		/	i .	=			1.	
_	{	l .		•				5	ŀ			
_	1 :	Pad moist	very soft SI	HAIF come	,		ŀ	' -				
	1	sandstone	, very suit of	IIALL, SUIIE			İ	1 =				
	1	Sandstone	iayers.			•	10.0	امرا				
								10 -		•		
		Cony mais	t hard SHALE	with candet	ano			-				
-			L HATU SHALL	MICH Salinzi	Lone							
$\Box$		layers.						15 —				
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٦							20.0	20 _				
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╛		n-44			£1							
4		BOTTOM	of test bori	ing at 20.0	Teet.			-	l			
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2	Datum	-	Hammer Wt	140 Lbs.	Hole Diameter	4"		Foreman		W.M.		
5	Surf. Elev	Ft.		30 <sub>In.</sub>	Rock Core Dia	-		Engineer				
ŧ	Date Started	12/18/79	Pipe Size 0.	D. 2 to.	Boring Method	CFA		Date Con	npleted _	12/18/	/9	
5	SAMPLE CO	NDITIONS	SAMPLER	RTYPE	GROUND				8	ORING MET	HOD	
	D - DISINT		DS - DRIVEN SPE	LIT SPOON	FIRST NOTE	<u>Non</u>	e FT.			- Hollow Ste		
	I - INTAC	T	PT - PRESSED SI	HELBY TUBE	AT COMPLET	ion_Dr	Y FT	-	CFA -	- Continous I		tugers

MPM0002549

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**Exploratory Drilling** 

Test Borings

**Rock Coring** 

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Pressure Testing

LOCATIO	Subsurface Exploration, Union Carbide Plant Site No. NOFBORING AS directed in the field	MEST	V11 41	1110		DR-9	1033	-
ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	•	SAMP	Æ		_
ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	DEPTH	SCALE	Cond	Blows/6"	No.	Туре	F
	SURFACE	0.0 -						Γ
·			=	•			l	ı
	Brown moist medium dense clayey fine SAND						ĺ	
-	with fine gravel.	7.5	5	-	2/4/5	١,	,,	L,
		1	1 7	· D	3/4/5	1	DS	1
				D	4/6/7	2	DS	18
-	,	ł	10-	D	4/5/7	3	DS	١,
•		l	-	U	4/3//	1	03	ľ
•			١,, ٦					
		1	15	D	4/6/5	4	DS	۱ ۶
			l ∃		, ,	'	l	ľ
			I 7	ᄱ	10/12/12	5	DS	18
		1	20-					
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			۱ ۵- ۲					
	·		25-	D	6/6/8	6	DS	18
			30					
			30 -	D	5/7/8	7	DS	18
			F					
			35		6 47 40	ا ؞ ا	20	
	,		<b>‡</b>	D	6/7/9	8	DS	16
	Brown moist medium dense fine to coarse SAND.		$\pm$	1				
	The state of the s		40	D	9/9/11	9	DS	
			7		3/3/11	9	ט	O
		45.0	ゴ	1				
	promit morat mention dense time to coarse sand	43.0	45		6/11/10	10	DS	ın
	and GRAVEL.		<b>-</b>	۳-	0/11/10	'	03	v
		-	7				ı	
	Bottom of test boring at 50.2 feet. $\bigvee$	50.2	50	D	55/2"	ו ור	DS	2
. 1	NOTE: Installed 50.0 feet of piezometer pipe		Ė					
	including 2.0 feet above ground.	- 1	<del>-</del> -	- 1				
	increasing 2.0 rect above grounds		55					
atum	- Hammer Wt. 140 Lbs. Hole Diameter 8"	F	oreman .		W.M			
orf. Elev	- Ft. Hammer Drop 30 In. Rock Core Dia		nginear_					_
ate Started	12/18/79 Pipe Size 0.D.2 In. Boring Method HSA		ate Com	pleted	12/19/79			
	NDITIONS SAMPLER TYPE GROUND WATER D EGRATED DS — DRIVEN SPLIT SPOON FIRST NOTED 15.	EPTH			BORING METH	<del>dOl</del>		
TOPO — ( INTAC —					- Hollow Stem			
- UNDIS		е <u> </u>		CFA	- Continous Fl	ignt A	uger:	,

516 Enterprise Drive Covington, Kentucky 41017 Exploratory Drilling

Test Borings Rock Coring

Phone: 606-341-4958

Pressure Testing

	CLICAIT	iriao Engineering consultants					J		
	CLIENT	Subsurface Exploration, Union Carbide Plant Site No.	2. Sis	tersy	ille.	JOB #	C791	00	
	PHOJECT_	OF BORING As directed in the field	/West_	Virgi	nia		DR-9		₹_
	LOCATION	OF BORING AS directed in the Fierd		<u> </u>					
		SOIL DESCRIPTION	STRA.	DEPTH		SAMP	LE		
	ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	DEPTH	SCALE	Cond	Blows/6"	No.	Туре	R
				<del> </del>	-		+		┢
		SURFACE -		<del>                                     </del>	1				l
-	· .	Brown moist medium dense fine to coarse			1	İ	1		ŀ
_		SAND and fine GRAVEL.	4.0	-		1	1		ı
<u>-</u>						j .	'		
	1	•	1	] ] _	D	6/11/13	1	DS	112
_	]	Brown moist medium dense fine SAND.		] -	-				
	1	prown morse medical dense rige same.	1	l.	1		1		
_	<b>j</b>		ı	10 _	0	5/8/9	2	DS	h
_		•	į.	-	, U	3/0/3	1	03	"
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-			1	20 —		•			
				20 -	D	3/4/5	14	DS	η8
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-			ł	-	D_	5/6/7	5	DS	1 8
		•	ł	25 -	n	2/0/0	6	DS	h c
-			j	-	ט	3/8/9	O	US	۲۱۹
$\exists$		•	ļ	-	]	ł	1 /		
$\exists$			- 1	30	1	l	1 1		1
			31.5	30	D	4/6/8	7	DS	118
=			71.5	- 1		1,70,0			l .
-			1	-	1				ĺ
$\dashv$	<i>'</i>	Ditting of the bourge of 27 f foot		35	}	•	1 1		ĺ
彐	1	Bottom of test boring at 31.5 feet.		-	1	l			
$\dashv$			1		1	ĺ	1 1		l
1	I	•	- 1	l -		Į.	1 1		ĺ
_]						l	1 1		ĺ
ᅥ		NOTE: Installed 32.0 feet of piezometer	1	] =	]		1 1		
コ	1	pipe including 2.0 feet above ground.	1	-	}		1 1		
$\dashv$	1	File management and another grammer	1	_	1	l	1 1	ı	l
ゴ	ı		ì				1 1		i
$\dashv$	i		ı		1		1 1		
$\dashv$	l		1	_		ŀ	1 1		
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L	/.	140.		_		W.M.			
- (	Datum	Hammer Wt. 140 Lbs. Hole Diameter 8"	<del></del>	Foremer	· ——				
:	Surf. Elev	- Ft. Hammer Drop 30 In. Rock Core Dia		Engineer	·	70/20/			
1	Date Started	12/19/79 Pipe Size 0.D.2 In. Boring Method HSA	Α	Date Co.	mpletec	a <u>12/19/</u> 7	<u>/y</u>		
		COOLING WATER	ER DEPTH			BORING MET	HOD		
	SAMPLE CO D - DISINI	CCRATED DS - DRIVEN SPLIT SPOON FIRST NOTED.	$20.0_{FT}$		HSA	A - Hollow Ste		ers	
	I - INTAC		Note FT			A — Cantinous I	Flight .		rs
		THE POST OF THE PO			D.C	- Driving Cas	ina		

516 Enterprise Drive Covington, Kentucky 41017

**Exploratory Drilling** 

Test Borings Rock Coring

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**Pressure Testing** 

# FIELD LOG OF TEST BORING

	ubsurface Exploration, Union Carbide Plant Site No. 2, OF BORING As directed in the field /Wes	Siste	ersvil	le,	BORING #		7910 ?-96	
LOCATION			1	CAMBLE				
ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	Cond		_	Туре	R
	SURFACE	0.0 -				1	<u> </u>	H
	Brown and gray moist medium stiff FILL, sandy clay.		5	-				
-		16.0	10 - - - 15					
	Gray and brown moist medium dense fine SAND.		20	U	2/2/3	· ·	DS	18
			25 — —	D	7/8/7	2	DS	18
		,	30	D	6/7/7	3	DS	18
			35	D	3/5/6	4	DS	18
		41.5	40	D	5/5/6	5	DS	18
	NOTE: Installed 44.0 feet of piezometer pipe, including 2.5 feet above ground.		45. — - - - - - - - - - -					
Datum	- Hammer Wt. 140 Lbs. Hole Diameter 8"		Foreman		W.M.			
Surf, Elev, Date Started.	T2/19/79 Pipe Size 0.D.2 In. Boring Method HSA		Engineer Date Con	pletec	12/10/70	}		_
\$ AMPLE COID - DISINT I - INTAC U - UNDIS	rditions sampler type ground water grated ds — driven split spoon first noted 25.0 the pt — pressed shelby tube at completion. Not	DEPTH		HSA CFA	BORING MET  A — Hollow Stell  A — Continous I  — Driving Cas	m Aug Flight		rs

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Test Borings Rock Coring

Phone: 606-341-4958

**Pressure Testing** 

	· T	riad Engineering Consultants				E	BORING #			
	CLIENT	ubsurface Exploration, Union Carbide Plant Site	No. 2.	Sist	<u>ersvi</u>	11e,	JOB #			
	PROJECT_3	do directed in the field	/West	: Viro	inia			DR-9	<u>633</u>	
	LOCATION	OF BORING As directed in the field	7	<u>, , , , , , , , , , , , , , , , , , , </u>						
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			STRA	DEPTH		SAMPI	Æ		
1		SOIL DESCRIPTION		DEPTH	SCALE	Cond	Blows/6"	No.	Туре	Re
1	ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	,					+		_
ŀ		SURFACE —		- 0.0	L			1		l
		SUNFACE		l	-					
٦		•		t		1			l	1
$\exists$		•		l	_	1	•	1	1	
ᆛ		Black moist medium stiff FILL, sandy		l	5-					1
ᅥ		clay with gravel.	•	1	-			1		
J	1	City with grateri		1						1
$\exists$		•		l	-			1	•	1
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$\dashv$		•		16.0	15-	ľ	•	1		1
				1.0.0	1 =				1	1
$\exists$					- ا					1
-		Brown moist medium stiff sandy CLAY		1	- ما			1		1
٦		with fine gravel.		00.	] 20—	l . I		1		ı
		niun iinu gi arati		22.0		l	•	1		1
					-	1			}	1
-				1	0-			1		L
				l	25-	D	9/9/10	П	þs	18
-		Brown and gray wet medium dense fine		ĺ	-				1	1
$\dashv$	•	SAND.		1	-	1 1		1	]	1
				1	30			L	L_	L_
		•		1	_	D	3/6/7	P	þS	18
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				1 20 .	35-	ן ט	4/4/6	В	bs	15
				36.	2] ૅૅ -		4/4/0	۲	٢	1
믑				1	1 :	1 1		1	į	
_		Bottom of test boring at 36.5 feet.		ŀ		1 1				1
-		DOCCOM OF CCSO DOTTING AD OUT OF		1	40	1 1		1	1	
		ware v . 33 1 00 0 feet of micromotom mino		1		1	·	-	1	1
	}	NOTE: Installed 38.0 feet of piezometer pipe,		1	-	]			1	١.
$\dashv$		including 2.5 feet above ground.			-	1				1
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	{			<u> </u>		<u> </u>	L			
	L		Oll		Forema	_	W.M.			
	Datum Hammer Wt, 140 Lbs. Hote Diameter			8"						
Surf. Elev.		20			Enginee	r	12/19/	70		
	_	10 (10 (17) HSA Date		Date Co	mplete	d	13			
	Date Staned T.J. T.J. Tipe Site CROUND WATER DEPTH					BORING METHOD				
	SAMPLE CONDITIONS SAMPLE CONDITIONS 22.0 ET						A - Hollow St	em A	ogers	
		DISINTEGRALES AT COMPLETION NOTE FT.				CF.	A - Continou	s Fligh	ı Aug	ers
	I - INTAC	FI - FRESSED SHEED TODE AT COM CE				00	- Driving C	asing		

